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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/720,006	12/19/2000	Johann Karl	RDID00115US	5872

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Roche Diagnostics Corporation
9115 Hague Road
PO Box 50457
Indianapolis, IN 46250-0457

EXAMINER	
PADMANABHAN, KARTIC	
ART UNIT	**PAPER NUMBER**
1641	

DATE MAILED: 12/28/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/720,006	KARL ET AL.	
	Examiner	Art Unit	
	Kartic Padmanabhan	1641	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *44-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *44-52* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/14/04 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 44, 45, 49, and 51 are rejected under 35 U.S.C. 102(b) as being anticipated by Bellet et al. (US Pat. 5,011,771). The reference discloses an immunometric assay comprising the formation of a complex between antigen and multiple immobilized monoclonal antibodies against different epitopes of the antigen and with a detectably labeled monoclonal antibody (abstract). The sandwich or immunometric assay is meant to include simultaneous, forward, and reverse sandwich assays (Col. 5,lines 24-30). In a forward immunometric assay, sample is contacted with solid phase bound antibodies such that antigen in the sample is bound to the solid phase bound antibodies. Detectably labeled antibodies are then added to the solid phase. Labeled antibody on the solid phase is then detected as an indication of analyte presence (Cols. 5-6). The solid phase of the reference is an immunoabsorbent, which may be beads formed from

glass, polystyrene, polypropylene, dextran, nylon, and other materials, or tubes formed or coated with such materials (Col. 8, lines 1-3). According to the reference, the multiple immobilized antibodies are bound to the same solid phase, as close proximity is important (Col. 8, lines 7-9). The monoclonal antibody may be labeled with any detectable label (Col. 8, lines 20-21). Any animal sample containing a detectable antigen can be used in the assay (Col. 8, lines 31-35). Any multivalent antigen can be detected with the assay of the reference, including viral antigens such as Hepatitis B, Herpes Simplex viruses I and II, Herpes Virus Zoster, cytomegalovirus, Epstein-Barr virus, and Papova viruses such as measles, rubella, or influenza (Col. 8, lines 62-68). The materials for use in the assay are ideally suited for packaging in a kit (Col. 9, lines 62-63). In addition, the method of the reference inherently has an inert surface that does not bind analyte or other sample components located between the two immobilized antibodies, as Figures 1B, 1C, and 1D all show separation between the two immobilized antibodies with no interaction whatsoever occurring in this area.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 46-48, 50, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bellet et al. (US Pat. 5,011,771) in view of Kuo (EP 0 813 064).

Bellet et al. teach a multiepitopic assay, as previously discussed under 35 USC 102(b). However, the reference does not teach the diameter of the test area, a control area, or latex particles as the label.

Kuo teaches a solid support on which an antibody specific to an epitope of an analyte and a first labeled antibody, which is specific to another epitope of the analyte, are immobilized. A second labeled antibody is also provided which is specific to the first labeled antibody (abstract). The signal generated by the complex is detected on the substrate. The solid support of the reference may be any of those materials known in the art as being suitable for conducting immunoassays, such as the interior surface of a microtiter well (Col. 3). According to one embodiment, there is a reagent region containing a second antibody labeled with gold sol, a second reagent region containing a third antibody labeled with gold sol, and a capture zone with

immobilized first antibody (Col. 4). Although the regions may overlap, it is not necessary and there may be spacing between the regions (Cols. 4-5). The support may also be provided with a positive control zone (Col. 5). Metal sols are the preferred signal generators, but any species producing a detectable signal may be used, including latex particles (Col. 5).

It would have been *prima facie* obvious to one of ordinary skill in the art at the time of the invention to use the control area and latex particles as the label of Kuo with the method and kit of Bellet et al. because the use of a control area allows determination of background or baseline, which permits calibration of the assay system and a more sensitive measurement of analyte presence. In addition, since Bellet et al. teach that any suitable label may be used with their method, one could have used latex particles with a reasonable expectation of success. Further, the selection of a specific label simple represents an optimization of the assay protocol that one of skill in the art could have easily chosen based on preference. It has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416. It would also have been obvious to use test areas with diameters less than 1 mm. Bellet et al. teach that immobilized antibodies must be in close proximity to each other, and choosing the actual size of the area simply represents an optimization of the assay. It has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Response to Arguments

8. Applicant's arguments filed 12/14/04 have been fully considered but they are not persuasive.

9. Applicant's arguments that the Bellet reference teaches away from the use of a single immobilized antibody are off point. Even assuming this to be the case, applicant's invention is drawn to two immobilized receptors, so this alleged teaching of Bellet does not teach away from the claimed invention. Applicant's arguments that Bellet does not teach a non-porous support with first and second spatially separate areas with first and second analyte specific receptors is not convincing for reasons discussed above under 35 USC 102. Applicant is also directed to Figures 1B-1D. In addition, applicant's arguments that Bellet does not teach an inert surface between test areas are similarly unconvincing. Although Bellet does indeed teach that the immobilized antibodies must be in close proximity, the reference states that immobilization on the same solid phase is sufficient to achieve this. In addition, as seen in Figures 1B-1D, there is an area between immobilized antibodies that does not react in any way with other sample components, which is sufficient to meet this limitation. Applicant's arguments that the presence of an inert surface in the Bellet reference would render the method inoperable is not convincing, as Figures 1B-1D show an "inert" surface between antibodies while still allowing the antigen to bind both antibodies.

10. Applicant's arguments with respect to the rejection under 35 USC 103 are based upon the premise that the rejection under 35 USC 102 is not proper, a position which has already been addressed and found unpersuasive.

Conclusion

Claims 44-52 are rejected.

References: Thompson et al. and Lee et al. are cited as art of interest for teaching assays for the determination of analytes using antibodies directed against different epitopes of the analyte of interest.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kartic Padmanabhan whose telephone number is 571-272-0825. The examiner can normally be reached on M-F (8:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on 571-272-0823. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Kartic Padmanabhan
Patent Examiner
Art Unit 1641

*** KP

Christopher L. Chin

CHRISTOPHER L. CHIN
PRIMARY EXAMINER
GROUP ~~1800~~ 1641
12/22/04